GrummanWorld

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Grumman Unveils New Simulation Lab

What better way to test a new weapons system than to fly it on an actual mission to see if it works — and do this before the system is ever built?

That's what Grumman's new Simulation/Systems Development Lab can do. Located in the William T. Schwendler Engineering Development Center in Bethpage, the new 32,000-square-foot facility enables complex aerospace weapons systems to be simulated, evaluated or modified prior to full-scale development.

On April 11, Grumman unveiled the new $50 million lab to the news media and over 150 government and company officials.

"This new laboratory helps upgrade the company's overall technology base," said Grumman Chairman John O'Brien, "keeping us a competitive force in the development of advanced military weapons systems."

A full-mission simulation was demonstrated for the guests in the lab's 24-foot diameter dome. A low-level flying aircraft "flew" over Edwards Air Force Base in California and successfully engaged and destroyed two enemy helicopter gunships.

The high resolution images projected onto the dome's concave interior enabled the test pilot and guests to see everything that would be seen on an actual mission, all in real time. The images change not only as the pilot "flies" over different land masses, but when other aircraft are projected into the picture. Special audio and visual effects, such as explosions and missile launchings, make the exercise more realistic.

The purpose of a mission like this would be to test the abilities of a particular version of a conceptual aircraft. "This new facility lets us absolutely convince a customer that we have the capability to design, develop and evaluate the performance of a new system before they have to spend any money to build it," said Chris Witt, director of Corporate Development Laboratories.

The lab has an enclosure to prevent the emission of electromagnetic radiation. Construction began in 1987. Witt said that the new lab is second to none.

"Most bigger corporations have multiple domes," explained Witt. "But each dome is dedicated to a particular program. The Grumman dome can be rapidly reconfigured to accommodate any simulation needed — aerospace, land vehicle, ship or submarine systems."

Huge doors at the entrance to the dome allow one cockpit or crew station to be wheeled out and another brought in within hours. "We could work on the Tomcat-21 in the morning and the Advanced Tactical System in the afternoon," said Witt.

One of the most important features of the new lab is the ability to put a person in the loop of systems testing. "We've always done part-task simulation," said Jim Riordan, director of the Lab. "We measured flight and handling qualities in a non-real time, non-interactive analysis. Now we have the capability to test the system as it interacts with the actual environment in which it will function."

Simulations in the lab are made possible through the use of a network of the most advanced computing, simulation, display, and communications equipment.

(Continued on page 6)

Closest To The Real Thing. *In the Simulation Lab's dome, the pilot in the cockpit sees realistic images projected onto the dome's concave interior. These images change as the pilot "flies" over a selected land mass and when other aircraft project themselves into the picture. Harry Grossman (above), a team leader in the lab, "flies" next to an F-14 over Bethpage, Long Island. (Photo by Rich Breunig)*

Guarino Named President Of New Systems Group

At its meeting on April 20, the board of directors approved the establishment of a Systems Group made up of Electronics Systems, Melbourne Systems and Space Systems divisions.

"All three are integrating complex electronics and software systems," said Chairman John O'Brien. "Taken together, these divisions represent a systems expertise that is second to none in the world. By organizing these divisions into a unified systems group, we can offer that total capability to our customers, while sharing resources and improving operations coordination."

Tom Guarino

The presidents of the three divisions report to Tom Guarino, who has been appointed president of the new group. Guarino returned to Grumman last year as Grumman Corporation vice president and assistant to John

(Continued on page 3)

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What's Inside

Grumman Begins Delivery Of C-17 Parts - P. 2

I Heard It At The Pin Meeting - P. 3

Retirees Preserve Grumman's Past - P. 4

Service Milestones - P. 7

Grumman Begins Delivery Of C-17 Parts To Douglas

Defense procurement is down. But the recent flood of orders from the airlines and airliner leasing companies for new planes is putting a strain on the production capacity at McDonnell Douglas. That means opportunities for Grumman Aircraft Systems.

On April 13, Aircraft Systems delivered the first detail parts under a $65 million parts and tooling contract from Douglas Aircraft. Aircraft Systems will produce over 45,000 machined, sheet metal and extruded parts, as well as tooling, for the Douglas C-17 military transport.

"This is our first major detail parts contract," says Parts Fabrications Operations general manager Vince Ciampa. It couldn't be better timed. "It helps sustain the workload with the proposed cutbacks in the A-6 and EA-6B and it helps maintain our tooling skills."

The contract allowed Parts Fabrication Operations to take 35 Grummanites from other Long Island sites who otherwise would have lost their jobs in the reduction in force early this year. All 35 went to work in Bethpage Building 3 — Grumman's parts fabrication facility. Ninety percent of the C-17 work will be done in Building 3; the rest will be done in Building 2 in Bethpage and the machining center in Glen Arm, Maryland.

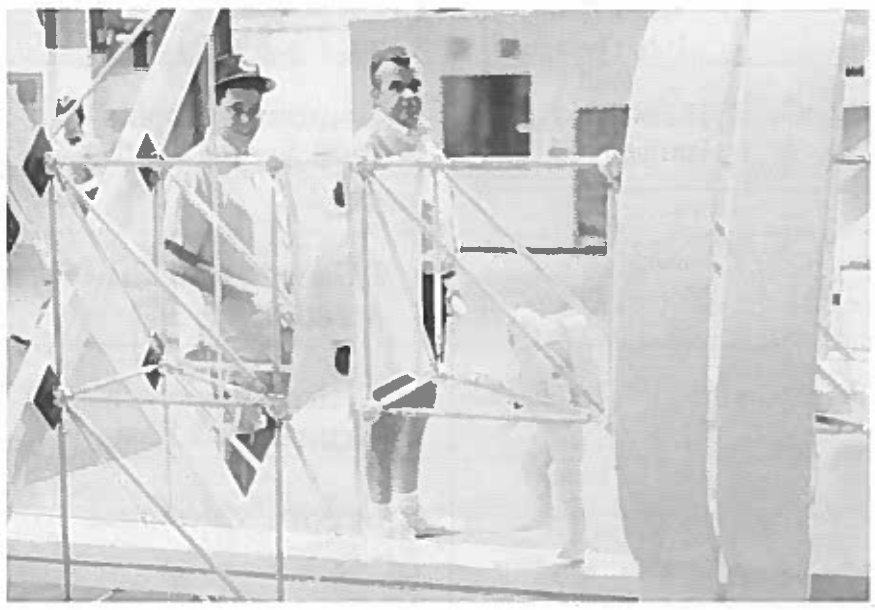
Douglas decided to subcontract detail parts work for its Air Force C-17 transport to make room for airliner production. "There is a huge backlog in the commercial market," says Ciampa. "There are aircraft that are 15 and more years old and the airlines want to replace them with more fuel-efficient aircraft that can carry more passengers. So Douglas, Boeing and Airbus are being pressured to increase their production rates — but there's not enough capacity."

Work started on the contract in February. "We'll hit a peak in May, June and July for the tooling work," Ciampa says. "We'll be delivering detail parts through the end of this year for the first lot." The contract calls for three lots of parts, the last lot to be delivered in 1991. Grumman will bid competitively for additional production contracts.

Ciampa says Grumman has been aggressively selling its tool-making skills and the detail parts and machining capabilities Grumman created with its $99 million investment in Building 3.

Taking A Look. *Grumman inspector Bob Booy (R) and Douglas Quality Assurance rep Greg Strouse look at some trial detail parts in Building 3 in Bethpage. Grumman delivered the first parts under a C-17 contract with Douglas on April 13. (Photo by Larry Van Wallendael)*

Houston Hosts Family Day. *On Sunday, April 16, Houston Operations hosted an open house for Grumman family members. Over 1,500 people attended. The children got a chance to see where their parents work and to touch an EA-6B, A-6E, and F-14 (above). Also on display were Grumman boats, an aerial fire pumper, an LLV, and Space Station mockups (below).*



GQ Solutions Identify Savings Of $$ Millions

On Wednesday, April 12, about 120 Grumman Quality participants gathered in the Headquarters concourse to celebrate the implementation of 25 GQ solutions. These solutions have helped the company identify savings of several million dollars.

"To date, over 2,000 Grumman people have been trained in process GQ. There are 90 Grumman facilitators, and 80 GQ action teams," said Dean Cassell, Grumman vice president-Product Integrity and Environmental Protection.

Grumman Chairman John O'Brien congratulated the group. "You have made a major contribution to the company. Grumman needed to start GQ a long time ago. Many people bet that we wouldn't do it. Many bet that I wouldn't implement the changes. But we have. As I've said many times before, I will change anything if it will make this company better. Nothing is sacred.

"Thanks to you, we are in an ideal postion to make Grumman one of the best companies in the world," he added.

Three GQ team leaders presented a brief summary of what actions their respective teams initiated. Those giving presentations were: Phil Gandolfo, Data Systems, the budget process; Don Reuss, Aircraft Systems, rework; and Carl Amato, Aircraft Systems, streamlining of internal status reports.

A Quality Gathering. *Chairman John O'Brien discusses Grumman Quality with GQ team members in Headquarters on April 12.*

I Heard It At The Pin Meeting

O'Brien Discusses X-29, Debt, Capitol Hill

On March 23 and 31 and April 7, Grumman Chairman John O'Brien met with Grummanites celebrating their service anniversaries with the company. Some excerpts from those meetings follow:

A few years ago, we developed the X-29. Can you comment on what's being done with the technologies we spent so much money on?

John O'Brien: We spent money on the X-29 to develop several technologies in a visible research and development vehicle. It was funded at least 50 percent by DARPA and the Air Force. Now, some people may think we spent more money than was prudent. But we learned about digital flight control technologies — fly-by-wire — and these will find their way into the Tomcat-21, if it comes on line and if we can fit it into the funding envelope. The second X-29 is on its way out to the West Coast to start flight testing. We've gotten a lot of good publicity and a lot of technical knowledge from that program. The X-29 is about five years old. If Tomcat-21 happens, it will start two or three years from now. That's pretty fast progress from experiment to application.

(On Grumman's lobbying efforts in Washington:)

O'Brien: ...I think our lobbying could be stronger and I've made some changes in our Washington office to make it stronger. But we still have in the Defense Department the same plan to fight the Russians that we've had for 45 years. We have a plan to buy ATA's to penetrate Russia — but the Russians don't want to be our enemies anymore, and nobody's changed the plan.

We're dealing with a lot of frustrations. Our customer is buying 84 F-18s. They're buying them because they're cheap. Now, how many F-18s have fought the Libyans attacking the U.S. fleet in the Mediterranean? None. Why not? Because they don't carry enough fuel to fly that combat patrol. But they're cheap.

So we're in Washington a lot — I'm there, Pete Oram's there — and we're asking them, "Why aren't you buying more of our products when they're the ones you count on?" The answer is that they're too expensive. So we remind them that they're cheaper if you buy more of them. We go around in circles, and it's no fun getting dumb answers .

Are there any opportunities for us in the space world?

O'Brien: We have a $10 billion opportunity in BSTS, but we have to win it. And we're taking lots of steps to win it. We've made some changes in that program and added some key people to it. We put some people from the Research department there to work on some of the software problems. Brought in some marketing people. It will be a head-to-head competition between us and Lockheed — and we've teamed with Lockheed to keep it in the budget. It's part of the Strategic Defense Initiative and it could get wiped out, even though most people recognize that it's different from SDI.

We've also got some space station work — both the management contract, and the work we're doing for Boeing.

When does the Space Systems Division get a replacement for its retiring president, Alex Alexandrovich?

O'Brien: Gosh, you guys are in a hurry! Alex doesn't even retire until the end of this month! What do you want to do — introduce him to his replacement at his retirement party? Poor Alex.

We are in the midst of a search, internally and externally, for a replacement, and we are talking to several people. But the folks in Space Systems can keep it all running for a few weeks after Alex leaves, I'm sure.

Could you outline your approach to reducing our debt?

O'Brien: Well, our debt is at its peak. It will probably stay at that peak into 1990: after that, if we make our operating plan, we'll be able to reduce it. We have to get our earnings up, which we have done, but we're nowhere near the goals we set for ourselves. While last year was a success in earnings growth, it was a disaster in terms of meeting our operating plans.

The only way to reduce debt is to sell assets or increase earnings so that you don't have to borrow so much.

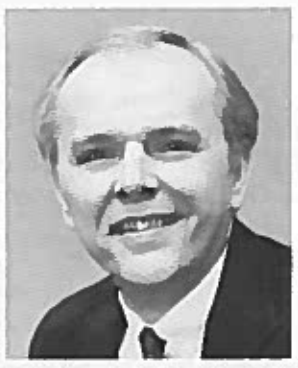
In all fairness, at least half our debt was caused by the government changing the rules over the past four years.Slowdown in progress payments, change in tax laws, reduced profits.

But if we continue to miss our objectives, if we don't perform, we won't get our debt down. It's no different than running a budget for your household. It's just that this household has 30,000 kids.

New Systems Group Formed

Mike Ciminera

Larry Rubenstein



Alex Zakreski

(Continued from page 1)

O'Brien. He had left the company in 1979 and held a variety of positions in the aerospace industry since then.

He first came to work for Grumman in 1961 as an advanced systems group leader. In 1964, he was named EA-6B systems project engineer and became E-2C program director in 1970. He was named a Grumman Aerospace vice president in 1975 and director of Navy programs the following year. He then became senior vice president and director of program management for military and commercial aerospace programs.

Guarino, in his new post as Systems Group president, reports to O'Brien.

The following appointments were also made in the new Systems Group: Mike Ciminera, vice president and assistant to Guarino; Larry Rubenstein, vice president—Business Analysis; Alex Zakreski, vice president—Marketing, and Alex Kirillin, director of Planning.

There were also a number of appointments in the Aircraft Systems Division.

Don Markarian has been named vice president—Aircraft Programs; Bob Kress, vice president—Advanced Programs; and Paul Bavitz, program vice president—Advanced F-14. They report to Aircraft Systems Division President Pete Oram.

Dan O'Neill has been appointed program vice president—F-14, while Bob Scholly Jr. has been named program vice president—EA-6B. They report to Markarian.

In addition to those appointments, George Tomlinson has been named deputy director—Aircraft Programs, reporting to Markarian. Richard Vance is now director, Field Operations. Vance reports to Oram and, as director of Field Engineering, also reports to Technical Services Division President Wiley Williams.

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Grumman Loses Space Bid

On April 20, NASA announced that it has chosen Martin Marietta as winner of the contract for the Flight Telerobotic Servicer.

"It's disappointing, of course, to lose this competition. But it was a close finish and I'm very proud of the job our team of Grummanites did on this project," said Grumman Chairman John O'Brien. "They all worked long and hard at it and no one could ask for more."

Sorry, Wrong Number

In the last issue of *Grumman World*, the wrong area code for Grumman's St. Augustine, Florida, facility was printed.

The correct number for the main switchboard in St. Augustine is (904) 825-3300.

Next Edition — Grumman World May 12

Just Like New. *Above, retiree Jim DeCarmine works on restoring a TBF Avenger from World War II. Below, Bob Giles, George Petrilak, and Art Romeo inspect the engine of the F4F-3A.*

By Restoring Vintage Planes, Retirees Preserve Grumman's Past

BETHPAGE, New York — "It's easy to take one of these old birds apart, but try to put it back together," says Grumman retiree Joe Bosch, scraping rust off the skins of an F4F-3A Wildcat. "You run into all kinds of problems, but I enjoy the challenge."

Bosch is on a team of about 30 retired Grummanites who spend one day a week in an out-of-the-way warehouse here, restoring vintage Grumman aircraft.

In the 16 years since the crew was formed, it has completed restorations of an F4F Wildcat and F6F Hellcat from World War II; a postwar G-72 Kitten; three F-11 Tigers built in the 1950s; and two Lunar Modules. The G-72, a LM and an F-11 are on display at the Cradle of Aviation Museum, Mitchel Field, Garden City, Long Island. The other LM is at the Franklin Institute in Philadelphia, and the *Intrepid* Museum in New York City has the other two F-11s. The F4F and F6F may be seen at the National Air and Space Museum, Smithsonian Institute, Washington, D.C.

A 1950's-era F9F-6 Cougar is just awaiting a paint job; it will go to the Smithsonian. The team has about four months' work left on a TBF Avenger from World War II, which will go to the Cradle of Aviation Museum. The newest project, the rare, fixed-wing F4F-3A Wildcat, will take about three years to restore and will then be exhibited at the *U.S.S. Yorktown* museum in Charleston, South Carolina.

"When I was working, I never actually got to work on the planes," says Bosch, who was an assembly-fixtures builder and later, a cost estimator. "Now I get to see how everything fits together."

The Grumman team is all-volunteer and self-managed, and isn't on a timetable. In fact, its work schedule is deliberately kept to one day per week; that way, projects never become a chore. The team's size has stayed pretty constant since the beginning. A few dozen retirees are on a waiting list to volunteer.

"There's only one thing this team isn't allowed to do: the paint job," says Art Romeo, the foreman of the team. "That's due to safety rules. We do touch ups, but the final painting is done by the Building 2 Paint Shop."

These Grummanites bring a wide scope of skills to the restoration team. Some are veterans of parts fabrication or the assembly line, while others worked in offices for their entire careers. They share a love for aircraft and a desire to preserve the company's history.

'We're proud of the fact that the company once turned out 605 airplanes in one month, the record set in World War II.'

"We're proud that the company once turned out 605 airplanes in one month, the record set in World War II," says Joe Mele, a retired industrial engineer. "This is our way of letting the younger generations know about it."

Mele worked in plastics and epoxies during his 42 years at Grumman. He designed and built a plexiglass canopy for the restored Avenger's gun turret. The aircraft had been converted into a crop duster, its turret closed up with galvanized steel. That will have to be removed.

"We have to be resourceful," says Mele. "A lot of parts and drawings just aren't around anymore."

Master Craftsmen. *The retiree team handles everything except for final painting, which is done in Building 2. Above, John Zockoff smooths a wing surface. At right, Sid Steele, Zockoff, Henry MacDonald, and Petrilak work on the Avenger's cockpit. It will be displayed at Long Island's Cradle of Aviation museum. (Photos by Bob Settles)*

"Each of us does just about everything here," says Tony Ferraoli, who joined the team right after he retired in 1973. "If one of us runs into some difficulty, there's always somebody here who can help. Plus, we know who the experts are inside the gate. We can call them for advice if we run into a really unusual problem."

The rare, fixed-wing F4F-3A Wildcat was at the bottom of Lake Michigan for 40-odd years and is the team's most ambitious project ever. Team members are now painstakingly remaking the most corroded parts. In some instances, old drawings are on file in Grumman's History Center; otherwise, copies are built from scratch.

'I have no real desire to go to Florida, France, Russia...I'm happy. Every day is Saturday.'

Rebuilding control surfaces will be one of their toughest tasks, since the skins were made of fabric and glue. Romeo and Augie Ripp are the only retirees in the group who have fabric-covering experience. They will supervise this process.

Other parts will get sandblasted, then painted. Sometimes, a clever substitution can be made: a chain much like that found on a bicycle controlled the F4F-3A's landing gear operation. The trick will be to find the right length of chain from suppliers.

"We were told by the Yorktown directors, just make it cosmetically good-looking," says Ripp. "But we have very strict standards ourselves and try hard to put the aircraft into their original state."

Atop a scaffold next to the F4F-3A is Henry MacDonald, who signed up with the team in 1977. "I'm the cockpit man," says MacDonald. "I take the instrument panel out and restore it. This plane is going to take years.

"I wake up early every Tuesday," says MacDonald. "I really look forward to getting here. I like getting my hands dirty — much of my time at Grumman was in Manufacturing Engineering, the collar-and-tie bit."

"I have no real desire to go to Florida, France, Russia," says George Petrilak, another retired industrial engineer. "Other retirees say, 'Hey, let's go to South Carolina and play golf.' Well, I played more golf when I was working!

"I'm happy...every day is Saturday," he says. "Once in a while I'll take something home and work on it there. My only problem is I can't sleep Monday nights, thinking about what's ahead for Tuesday."

At 88, Frank Bustamante is the most senior person on the team. He drives Romeo to the shop every Tuesday, in a red Volkswagen Beetle. He retired in 1965 and then taught tennis part-time for 20 years at Plainview, Long Island, High School. In the summer, he still plays several times a week.

"I made all the dies for the Avenger, from this end to the other," says Bustamante. "Sometimes it's more fun to come in here than to stay around the house. I have 17 grandchildren, but they're all grown up now — nobody is around anymore. This keeps me busy."

Grumman Vice President - Business Operations Jake Bussolini acts as a corporate liaison for the group, and he arranges trips several times a year for the team members. Accompanied by their wives or friends, they visit museums such as the *Intrepid* and the Smithsonian.

But their proudest moment is seeing their finished work. A plaque next to each exhibit has their names on it.

"It really gives you a sense of accomplishment to take something built 40 years ago and make it look brand-new," says MacDonald.

"The finished aircraft is a joy to see," says Ripp.

"I took my grandson to the *Intrepid*," says Mele. "He got a big charge out of seeing his grandfather's name on display. Things like that make it all worthwhile."

Proud Crew. *Below, in front of the F9F-6, are some of the team members: (standing, L to R) Petrilak, Augie Ripp, DeCarmine, Ellwin Luerssen, Giles, Steele, Zockoff, Walt Jankowski, Romeo, Otto Felser, Joe Bosch, MacDonald, (seated, C) George Burkhardt, and (kneeling) Frank Bustamante. Above, Luerssen and Ripp work on the Avenger's propellers.*

Up From The Deep

The F4F-3A now being restored by Grumman retirees had a short but colorful career.

Marked as bureau no. 3956, it is one of only 65 fixed-wing Wildcats produced early in World War II. These planes had originally been built for export to U.S. allies, but due to an aircraft shortage, most were issued to the Navy and Marine Corps. No. 3956 flew missions in the Pacific before being phased out of combat service in 1942, along with the other fixed-wing planes.

The aircraft then flew training missions out of Naval Air Station Glenview, Illinois. Pilots practiced carrier landings onto converted sidewheel steamers. It went down sometime early in 1944.

"We don't think it crashed," says Grumman Vice President Jake Bussolini, corporate liaison for the retiree restoration team. "We speculate that the plane caught fire on deck and was rolled overboard to prevent further damage on board."

To win the war, a lot of pilots had to be trained — and there were a lot of lost planes.

Lake Michigan and Lake Washington, which is next to Seattle and was also a training center, are treasure troves for curators. Under contract from museums, salvage companies use diving crews and sophisticated tools such as sonar to locate wrecks.

No. 3956's B.F. Goodrich tires still hold air, even after all those years under water.

A Simulator For All Systems Opens In Bethpage

(Continued from page 1)

Two ELXSI supercomputers provide the real-time test environments. In additon, software programs from the Defense Mapping Agency run on peripheral and special purpose computers. These programs include three land-mass databases, which simulate the areas around Edwards Air Force Base, California; Long Island and Connecticut; and part of Europe.

The lab is made up of "primary task centers": Vehicle Management, Mission Planning, Integrated Mission Management, and Threat Management.

The Vehicle Management Center uses mathematical models to investigate the performance characteristics of a weapons platform and its components. Later in the development cycle, the math programs can be replaced with actual hardware.

"Today's weaponry can interact with the next generation of systems," said Riordan.

Flight scenarios and mission objectives are established in the lab's Mission Planning Center. With the environment defined in the Threat Management Center, maps of a specific geographic area are used to plan the routes and interaction between opposing forces and to show the location of targets and ground threats.

As sophisticated as the systems are, during crew briefings, George Devoe uses colored pushpins to help plot the mission. "We plan as if it were an actual battle," said Devoe. "The red pushpins indicate hostile forces while the blue represent friendly troops."

The tests are executed in the dome, monitored and controlled by engineers and other specialists in the Integrated Mission Management Center. The center handles information such as the speeds, trajectories and other characteristics of over 200 ground threats, 100 ground targets and 25 aircraft.

If the test mission calls for interaction with other aircraft, there are four crew stations that can simulate any combination of friendly or unfriendly manned platforms. The pilots sitting at these crew stations view what they would see if they were actually flying. They are also given appropriate audio cues.

Even before an adversary is within the lead pilot's visual range in the dome, input from the lab's radar and infrared sensor simulators allows the pilot to detect, identify, track, lock-on and attack airborne or land based threats.

The Threat Management Center contains data on the radar and jamming capabilities for both enemy and friendly aircraft. The center will suggest the best routes for the attack aircraft to enter an area without being detected. "This information lets us accurately test the performance of a new system against any one of these threats," said Mitch Botwin.

The graphics center develops cockpit, crew station and test management station displays, such as the pilot's head-up display. The lab's special effects area generates sounds heard in the cockpit — such as engine and airframe noise, missiles launching, guns firing and radar warning receiver tones. These sounds are modified by what goes on in the cockpit — for instance, engine noise increases or decreases in response to throttle motions.

A separate platform management simulator is also available in the lab. It's a reconfigurable cockpit that isolates and tests individual components or displays. This would be the place to evaluate, for example, if a display contains too much information and is difficult for the pilot to read.

Among the current projects at the lab are the development of the Tomcat-21 and work on the OV-1D Mohawk. "We are also working on a touch panel display for the E-2C," said Riordan. "It could replace the light pens now used to activate the aircraft's current displays.

"We are a service organization and are available to all the divisions," said Riordan. "A lot of the software can be used outside the facility. Aircraft configurations, threat scenarios or other hardware data can be copied and used wherever needed by programs just starting up. That could save a year of development time."

A Specialist In Displays. *Barbara Koutsoubis is an engineer in the Graphics Lab of Grumman's new Simulation/ Systems Development Lab in Bethpage. Koutsoubis works on developing new cockpit displays as well as improving existing ones. Crew station and test management station displays are also developed in this laboratory. (Photo by Rich Breunig)*

Technology At The Top

"In the current business environment, we have to spend our money very wisely," says Chris Witt, director of Corporate Development Centers. "That demands a corporate oversight on where development activity takes place. We have to ensure there is no duplication of projects."

Witt's directorate is one of the five that make up the Office of Corporate Technology; the others are Corporate Research, Engineering, Technology Development, and Advanced Concepts. This group was formed a year and a half ago to ensure Grumman makes the best use of its technological resources.

The Simulation/Systems Development Lab is just the newest addition to the flagship William T. Schwendler Corporate Development Center. Better known as Bethpage's Building 14, it has more than quadrupled in size during the past 15 years — from 70,000 to 300,000 square feet.

The center is a maze of offices, computer rooms, test bays, and simulation equipment. There are four organizational components: corporate development lab planning, simulation/ system development labs, advanced electronics technology, and plant operations. There are also new facilities devoted to optics, sensors and telerobotics.

"At the Schwendler Center, we can design and build the whole product under one roof — even the tiniest subsystems," says Witt.

In his post, Witt keeps track of developments at about 30 other company facilities besides the center. Among those are: Aircraft Systems labs in Calverton, and in Bethpage's Buildings 5, 12, and 31; Electronics Systems labs in Great River, Melville, and Woodbury; Data Systems labs in Woodbury and Grumman Headquarters; and Space Systems labs in Bethpage and Irvine, California.

"At Grumman, we have some of the most modern computer and simulation equipment in the world," adds Witt. "But people are the most important asset, not equipment and buildings. With all applied to the right technologies, we'll be dynamite."

'89 Phone Books

The new edition of the Grumman Telephone Directory will be distributed in June. If you are a Grumman administrator, Telecommunications wants you to review your November 1988 directory request to see if there is a change in the number of directories your group needs. If there's a change, please send an updated request to Michael Casano, C22-GHQ by May 5.

J. E. Berhalter

F. J. Bernabei

R. Bob

A. J. Carrai

T. Collock

C. Davantzis

L. B. Decolator

C. D. Femia

R. L. Fugallo

G. H. Golden

R. J. Gomes

A. R. Gustaitis

A. L. Hanes

J. Krammer

A. Kraus

L. Levoy

Service Milestones

40

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Robert E. Freund, Bethpage, Aircraft Systems
Forrest W. Gilreath, Bethpage, Aircraft Systems
Sebastian S. Hollister, Bethpage, Aircraft Systems
Peter Lackey Jr., Great River, Electronics Systems
Richard Morales, Bethpage, Aircraft Systems
John W. Moseman, Virginia Beach, Aircraft Systems
Louis J. Napoli, Bethpage, Aircraft Systems
Robert B. Nielsen, Bethpage, Aircraft Systems
John O'Neill, Bethpage, Aircraft Systems
John R. Saxe, Bethpage, Corporate Services
George W. Stahl, Great River, Electronics Systems
Salvatore Vetrano Jr., Bethpage, Aircraft Systems
Conrad Vogel, Bethpage, Aircraft Systems

35

Charles Burke, Melbourne, Melbourne Systems
Joseph A. Dudek Jr., Bethpage, Corporate Services
Albert E. Hey, Bethpage, Aircraft Systems
Eugene A. Titus, Calverton, Aircraft Systems
Donald F. Waller, Bethpage, Aircraft Systems
Paul F. Woyke, Bethpage, Corporate Services

30

Edward J. Agolia, Bethpage, Aircraft Systems
Lloyd G. Angeloff, Hicksville, Space Systems
Arnold A. Arnister, Calverton, Aircraft Systems
Herman S. Binder, Reston, Space Station Program Support
Robert G. Black, Bethpage, Corporate Services
James K. Brown Jr., Melville, Aircraft Systems
Ronald M. Cegelski, Bethpage, Aircraft Systems
Edward J. Ciecwesz, Bethpage, Aircraft Systems
Richard J. Combs, Melville, Aircraft Systems
John P. Coughlan, Woodbury, Corporate Servcices
Anthony P. Cusumano, Melville, Aircraft Systems
Leo J. Czerepkowski, Hicksville, Corporate Services
Charles E. Dailey, Bethpage, Aircraft Systems
Anthony Damico, Stuart, Aircraft Systems
Richard G. Detke, Bethpage, Aircraft Systems
Walter F. Ecklund Jr., Hicksville, Aircraft Systems

A. Lih

W. F. Matzen

G. J. Maune

P. B. McCann

A. B. McKeveny

V. T. McVicker

A. Osborne Jr.

W. L. Quigley

T. W. Reilly

R. Rohr

R. E. Schwarz

C. J. Shattuck

J. Townsend

J. M. Umscheid

J. Upp

A. K. Weidig

F. J. Wenz

R. J. Zanella

Fred A. Elsner Jr., Bohemia, Electronics Systems
Dennis G. Frakes, Hicksville, Corporate Services
Santino J. Giacoia, Melville, Aircraft Systems
Melvin A. Greene, Bethpage, Corporate Services
Robert N. Jonassen, Bethpage, Aircraft Systems
Lewis Kasuga, Melville, Aircraft Systems
James L. Kuchcicki, Bethpage, Aircraft Systems
Joseph R. Laia, Bethpage, Aircraft Systems
Dane G. Lamberson, Melville, Aircraft Systems
David P. Leary, St. Augustine, Aicraft Systems
William D. Looney, Melville, Aircraft Systems
Frederick P. Losee, Calverton, Aircraft Systems
Charles A. Mahoney, Bethpage, Aircraft Systems
Alfred O. Marhold, Titusville, Technical Services
Robert C. Perinka, Bethpage, Corporate Services
Lawrence P. Petersen, Calverton, Aircraft Systems
Alfred C. Posillico, Bethpage, Aircraft Systems
Thomas J. Reid, Melville, Aircraft Systems
Roy L. Remsen, Bethpage, Corporate Services
Patricia A. Roth, Virginia, Grumman Corporation
John C. Schroeder, Melville, Aircraft Systems
David Shannon, Melville, Aircraft Systems
Benedict Trapani,Bethpage, Aircraft Systems
John A. Walsh, Bethpage, Aircraft Systems

Ronald A. Westberg, Stuart, Aircraft Systems
Louis N. Willers, Bethpage, Aircraft Systems
Henry G. Wittman Jr., Melville, Aircraft Systems

25

John E. Berhalter, Bethpage, Corporate Services
Frank J. Bernabei, Pt. Mugu, Aircraft Systems
Alphonse S. Bishay, Melville, Aircraft Systems
Richard Bob, Bethpage, Aircraft Systems
Clarence H. Boyd, Melville, Aircraft Systems
William J. Bradley, Melville, Electronics Systems
Arthur J. Carrai, Bethpage, Aircraft Systems
Donald G. Collins, Melville, Aircraft Systems
Theodore Collock, Melville, Electronics Systems
Constantine Davantzis, Melville, Aircraft Systems
Louis B. Decolator, Calverton, Aircraft Systems
Carmelo D. Femia, Great River, Electronics Systems
Richard L. Fugallo, Bethpage, Aircraft Systems
Gerald Gelfand, Bethpage, Aircraft Systems
George H. Golden, Melville, Aircraft Systems
Ronald J. Gomes, Stuart, Aircraft Systems
Algimantas R. Gustaitis, Bethpage, Aircraft Systems
Albert L. Hanes, Melbourne, Melbourne Systems
Jack Krammer, Melville, Aircraft Systems

Anthony Kraus, Bethpage, Aircraft Systems
Louis Levoy, Bethpage, Aircraft Systems
Arthur Lih, Bethpage, Aircraft Systems
William F. Matzen, Pt. Mugu, Aircraft Systems
George J. Maune, Hicksville, Aircraft Systems
Paul B. McCann, Melville, Aircraft Systems
Alexander B. McKeveny, Great River, Electronics Systems
Vincent T. McVicker, Stuart, Aircraft Systems
Augustus Osborne Jr., Bethpage, Aircraft Systems
Walter L. Quigley, Bethpage, Aircraft Systems
Charles J. Radimer, Glen Arm, Aircraft Systems
Thomas W. Reilly, Melville, Aircraft Systems
Edward V. Reiss, Bethpage, Aircraft Systems
Richard H. Rohr, Reston, Space Station Program Support
Rolf E. Schwarz, Bohemia, Electronics Systems
Charles J. Shattuck, Bethpage, Aircraft Systems
James R. Sweeney, Great River, Electronics Systems
John Townsend, Bethpage, Aircraft Systems
Joseph M. Umscheid, Melville, Aircraft Systems
Jack Upp, Sturgis, Allied
Albert K. Weidig, Calverton, Aircraft Systems
Frank J. Wenz, Melville, Aircraft Systems
Rudolph J. Zanella, Hicksville, Aircraft Systems

Obituaries

David J. Bergen of Maintenance, Bethpage, Corporate Services, died April 12 at the age of 56. He had been with the company since 1959 and resided at 40 Franklin St., Amityville, N. Y.

John H. Lehnfeld of Maintenance, Great River, Corporate Services, died April 3 at the age of 29. He had been with the company since 1985 and resided at 35 Avenue D, Lake Ronkonkoma, N.Y.

Carolyn Stern of Accounting/ Resources and Systems, Milledgeville, Aircraft Systems, died April 14 at the age of 29. She had been with the company since 1984 and the mailing address is Route 1, Box 2270, Gray, Georgia.

Gary N. Stone of Field Offices, Houston, Corporate Services, died March 31 at the age of 47. He had been with the company since 1974 and resided at 1418 Diana Ct., Houston, Texas.

Personals

My family and I appreciate your acts of kindness at the passing of my beloved father Charles Bell. It is a wonderful feeling to be thought of by the people in Building 15 in such a splended, generous way. Truly we are very grateful to all of you because your concern showed you care. **Nero Bell**

My daughter Vivian and I wish to extend our gratitude to all our Grumman friends for their thoughtfulness and support during the loss of my wife Josephine. **Ted Romer**

We would like all our Grumman friends to know how deeply we appreciated your presence and your expressions of love and concern given in response to the passing of our mother Mabel. She always felt personally close to all in her Grumman family and we are grateful for your sympathy and thoughtfulness. **The Schwendler Family**

We wish to express our sincere thanks and gratitude to all our friends and co-workers for their kindness, expressions of sympathy and tremendous support during the recent loss of my loving husband Frank and my gentle father Joseph Horton. **Eileen D. Weber and children**

I wish to extend my sincere thanks to all of my friends at Grumman who attended my retirement party and roast. It was a memorable occasion that my wife and I will treasure forever. **John Campbell**

My family and I wish to extend our sincere thanks to all our friends and co-workers for their prayers, cards, flowers, and most of all their support during the recent loss of my husband George. **Cecelia Danas**

Readership Survey

We don't want to do all the talking. We'd like to know what you think about the things you see in these pages. Your comments, suggestions and complaints are welcomed.

Article	Great	Good	Poor	Didn't Read
New simulator (P. 1)	[ ]	[ ]	[ ]	[ ]
New Systems Group (P. 1)	[ ]	[ ]	[ ]	[ ]
C-17 (P. 2)	[ ]	[ ]	[ ]	[ ]
Pin Meeting (P. 3)	[ ]	[ ]	[ ]	[ ]
Retirees (P. 4)	[ ]	[ ]	[ ]	[ ]

Suggestions for Future Articles:.....

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Comments About This Issue:.....

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Name.....

Ext.....(Required if you wish a reply)

Division..... [ ] I am a retiree.

Mail to: Grumman World, A22-GHQ
1111 Stewart Ave., Bethpage, N.Y. 11714

Letter To The Editor

Dear Grumman World:

I want to thank you for the government officials' addresses in the April 7th issue of the Long Island Supplement. For the longest time I have been saying I should write my senators and tell them how I feel, but just kept putting it off.

Your list of addresses was the kick-in-the-rear that I needed. When I sat down to write the letter, it took no time to do. I was so happy with myself for finally voicing my feelings that I got a bit carried away. I modified the letter and sent a copy to President Bush. Once in gear, I got rolling.

I have attached a copy of the letter I sent to Senator Alfonse D'Amato and the others.

Sincerely,
Robert Wolk
Aircraft Systems
Melville, N.Y.

Dear Senator D'Amato:

I am writing you to express my concerns about my future here on Long Island and the future of Long Island itself.

I am presently employed as a Field Operations Manager with Grumman Aircraft Systems, based in Melville, New York.

We are seeing, over the past few years, that the cost of living, working and playing here on Long Island seems to be rising beyond the means of the average American middle-class worker. Our taxes keep rising, LILCO is again trying to stick it to us, and the cost of housing is utterly ridiculous.

I, fortunately, purchased a home on Long Island five years ago, just before housing skyrocketed. If I wanted to leave the state, and move south, like so many people I hear are being forced to do, I would do very well. However, Long Island has been home all 41 years of my life, and I want to stay.

Two of my sisters and my older brother weren't as fortunate, and had to leave the Island because the cost of living exceeded their income. They are now doing quite well out of state, and with the same income. Now, my younger brother is faced with the same and has begun looking for work outside New York. He too will leave, and not really by choice.

This high cost problem is affecting my company as well. It is very hard to hire young engineers, because they can't afford to live and work here on the Island. High utility rates and taxes make it difficult to bring new business here to Long Island.

It's getting *too hard* to live here. People are working for 30 years to retire and pay off a house, and when that day finally comes, they are forced to sell and move to another state because they can't afford to pay their taxes and utilities. Is this what living on Long Island is all about?

Maybe there's a big picture here that we, the residents of Long Island, don't see. Maybe the plan is to force all businesses and homeowners off the Island and make it one big resort area for all the politicians, land developers and utility executives. The people in power don't appear to be helping us.

I'm afraid of losing all I've been working for here. I don't want to leave Long Island. Is there a light at the end of this darkening tunnel?

Thank you for taking the time to read this letter. I hope there is a game plan to make living and working here more stable and realistic for the average Joe. Please help!

Sincerely,
Robert Wolk

Retiree Obituaries

Jane W. Babcock of 57 Calamint Hill Rd., Princeton, Massachusetts, died March 21, 1989. She retired in 1960.

Henry J. Bauer of 5860 38th Ave. N, St. Petersburg, Florida, died March 30, 1989. He retired in 1969.

Murry Beckerman of 800 SW 125 Way Bldg., Pembroke Pines, Florida, died March 22, 1989. He retired in 1986.

Charles H. Butzbach Jr. of 404 Pleasant View Ave., Copiague, N.Y., died March 11,1989. He retired in 1975.

Theodore R. Schumacher of 1751 Cameo Dr., New Port Richey, Florida, died April 6, 1989. He retired in 1970.

Adolph P. Selock of 19 Larkspur Ct., Farmingdale, N.Y., died March 22, 1989. He retired in 1973.

Anthony R. Segredo of 1336 S. Finley Rd., Lombard, Illinois, died March 25, 1989. He retired in 1977.

Samuel Shuler at Box 277, Rt. 2, Dillwyn, Virginia, died January 27, 1989. He retired in 1971.

Warren C. Trott of 436 2nd Ave., East Northport, N.Y., died March 17, 1989. He retired in 1987.

Andrew W. Wall of 21 Silber Ave., Bethpage, N.Y., died April 8, 1989. He retired in 1978.

Frank J. Weber of 46 Norcross Ave., Bethpage, N.Y., died March 15, 1989. He retired in 1988.

John D. Weeks of 7 Harbor Hill Rd., Glen Cove, N.Y., died March 19, 1989. He retired in 1971.

Ruth C. Winkler of 193 Walnut St., Lynbrook, N.Y., died March 31, 1989. She retired in 1977.

Bernard Woell of 5378 Celestial Cir., Stuart, Florida, died March 30, 1989. He retired in 1972.